

Syllabus :

Terraform on AWS Cloud

(Hashicorp Certified Terraform Associate - 003)

Topics Covered as Follows

Introduction to Automation and IAC

- Manual vs automation
- Imperative vs Declarative
- What is IAC and Advantages
- Deployment vs Configuration Management vs Provisioning
- Ansible vs Terraform

Getting Started with Terraform

- Advantages of Terraform
- Installation of Terraform in Windows and Linux
- Creating Project and IDE for HashiCorp Configuration Language

Terraform Basics

- Understanding Providers (Plugin Based Architecture)
- Understanding Registry (Finding Providers)
- Provider and Dependency Lock Files
- Provider and Terraform Version constraints

Terraform Workflow

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- Resource Block, Resource Type, Reference Name and Arguments
 - Initialize a Terraform Working Directory
 - Validate the Terraform Configuration
 - Generate and Review Execution Plan
 - Execute Changes to Infrastructure
 - Destroy Terraform Managed Infrastructure
 - Understand the Workflow - Write → Plan → Create (Terraform LifeCycle)

Terraform CLI(Outside the Core WorkFlow)

- Format the Terraform Code
- Single Line and Multi Line Comments
- Saving the Terraform Plan
- Benefits of State and Understanding Desired and Current State
- Inspect the Terraform State
- Import Existing Infra to Terraform Using Import
- Taint the Terraform Resource
- Multi-Region, Multi-Account and Multi-Cloud Implementation(Provider Agnostic Benefits)

Read, Generate and Modify Configuration

- Output Value
- Attribute Reference
- Understanding Implicit and Explicit Dependencies
- Terraform Graph
- Variables
 - Same File
 - External File
 - System variables

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- Run time
 - Interpolate Variables
 - Understanding the Primitive and Complex Types
 - Terraform Console Command
 - Secure Secret Injection Best Practices
 - Enable Verbose Logging

Terraform Expressions

- Understanding the Built-in Functions
- Data Sources
- Local Values
- Operators
- Conditional Expressions
- Splat Expressions

Provisioners

- Understanding Provisioners
 - Create-Time
 - Destroy-Time
 - Local-Exec
 - Remote-Exec
 - File
- Understanding Connection Block
- Provisioners on Failure
- Null Resource

Meta-arguments

- Depends on

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- Provider
 - Count
 - ForEach
 - LifeCycle

Terraform Module

- Understanding DRY Principle and Module
- Module Sources
- Module Input and Outputs
- Variables and Locals in Module
- Module from Public Registry
- Module Versioning

Implement and Maintain State

- Local Backend
- State Locking
- Handle Backend Authentication Methods
- Remote State Storage Mechanism and Supported Remote Backends
- Secret Management in State
- Cross Project Collaboration

Terraform Cloud

- Local and Remote Workspace
- Creating Terraform Cloud Account
- Integrating Workspace with Git
- Security Challenges in Git
- Terraform vault integration

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- Benefits of Sentinel, Registry and Workspaces
 - Open Source Software and Terraform Enterprise
 - Features of Terraform Cloud